

Trig. Equations of Quadratic Type

Name _____ Date _____ Period _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find all real numbers in the interval $[0, 2\pi)$ that satisfy the equation. Round approximate answers to the nearest tenth.

1) $2 \sin^2 x = \sin x$ 1) _____

2) $2 \cos^2 x + 3 \cos x = -1$ 2) _____

Find all real numbers in the interval $[0, 2\pi)$ that satisfy the equation.

3) $5 \sin^2 x - 2 \sin x = \cos^2 x$ 3) _____

4) $\sin x \cos (\pi/4) + \cos x \sin (\pi/4) = 1/2$ 4) _____

5) $\sin 2x \cos x - \cos 2x \sin x = -1/2$ 5) _____

Find all values of x in the interval $[0^\circ, 360^\circ)$ that satisfy the equation. Round approximate answers to the nearest tenth of a degree.

6) $2 \sin x = \cos x$ 6) _____

7) $3 \sin 2x = \cos 2x$

7) _____

8) $9 \sin^2 x + 12 \sin x + 4 = 0$

8) _____

9) $12 \cos^2 x + \cos x - 6 = 0$

9) _____

Solve the problem.

10) A weight is suspended on a system of springs and oscillates up and down according to

10) _____

$$P = \frac{1}{10}[\sin(2t) + \sin t]$$

where P is the position in meters above or below the point of equilibrium ($P = 0$) and t is time in seconds. Find the time when the weight is at equilibrium. Find the exact values. Do not use a calculator.

11)

11) _____

Find all solutions to $(\sin x - 1)(\sin x + 1) = 0$ in the interval $(0, 2\pi)$.

12)

12) _____

Complete the sum and difference identities.

a) $\sin(x + y)$ _____

b) $\sin(x - y)$ _____

Answer Key

Testname: TRIG. EQUATIONS OF QUAD. TYPE WS

1) $\left\{0, \pi, \frac{\pi}{6}, \frac{5\pi}{6}\right\}$

2) $\{\pi\}$

3) $\left\{0, \pi, \frac{\pi}{6}, \frac{5\pi}{6}\right\}$

4) $\left\{\frac{\pi}{4}, \frac{5\pi}{4}\right\}$

5) $\left\{\frac{\pi}{4}, \frac{5\pi}{4}\right\}$

6) $\{208.2^\circ, 331.8^\circ\}$

7) $\{208.2^\circ, 331.8^\circ\}$

8) $\{208.2^\circ, 331.8^\circ\}$

9) $\{70.5^\circ, 180^\circ, 289.5^\circ\}$

10) $0 \text{ sec}, \frac{2\pi}{3} \text{ sec}, \frac{4\pi}{3} \text{ sec}, \pi \text{ sec}$

11)

12)